UNITED STATES MARINE CORPS
Marine Corps Engineer School
Training and Education Command
Camp Lejeune, North Carolina 28540-0069

UIC/COE
13 Aug 03

From: SSgt Donald R. Orosz, 16867982/1171(SME), Utilities Instruction Company
To: MAGTF Liaison Officer, Marine Corps Engineer School

Via: (1) SNCOIC, Center of Excellence, Utilities Instruction Company
(2) Commanding Officer, Utilities Instruction Company

Subj: AFTER ACTION REPORT FOR LIGHTWEIGHT WATER PURIFICATION OPERATIONAL ASSESSMENT

1. The purpose of this assessment was to validate that the systems were 2 man portable, transportable by HWMMV, and to help decide if they needed to be MOS specific items. The test sites that were utilized were: Fresh water pond at Court House Bay, Salt-water sources at Mile Hammock Bay, and Onslow Beach.

2. The following consist of my general observations of the four water purification systems that were tested during the LWP Operational Assessment conducted by Marine Corps War fighting Lab from 4 Aug 2003 through 8 Aug 2003.

System 1:(MECO): During the Assessment I noticed that this model looked very sophisticated, bulky, and heavy. Of the four systems tested this version had the largest logistical footprint, and was the only one that required the use of a generator. The 831 TQG generator that is required weighs 420 lb's and is a six-man lift. This system also took the longest to load or unload, set up, and begin to purify water. This system was unique in that it was the only one that used ultra filtration prior to reverse osmosis. Because this system did utilize an 831 TQG it was the quietest of all the systems.

This system did produce high quality potable water from fresh and salt-water sources. Although purifying water from a rough surf action (Onslow beach) was not a requirement set by Office of Naval Research and MCWL, this system did not accomplish this task in the four hour allotted time.

Also noted during this assessment was the fact that after the system was loaded in the HMMWV that there was no room for anything else, i.e. Packs, water, fuel, food, and ammo.

Note: The following 3 LWP's are all driven by Yanmar JP-8/diesel pumps:

System 2: (Village Marine Tech): This was the smallest of the four systems. All the components of this system were easily maneuvered in and out of the HMMWV. I observed at all test sites (fresh water pond, Mile Hammock bay, and Onslow beach) that this system was the first one to be completely unloaded, set up and in operation. The system was easy to understand and operate.

This system did produce high quality potable water at all test sites to include Onslow beach. This system incorporated new technology into its basic design by adding an in-line Total Dissolved Solids (TDS) meter that allowed the raw water to bypass the RO membranes when the product water rises above 500 ppm during operation.

After loading the equipment into the HMMWV it was noted that there was plenty of room for any initial supplies that the Marines would need in a forward area. Also noted during the assessment, this system was very loud.

System 3: (Naval Facilities Engineering Support Center): NFESC was tasked by ONR to specifically "simplify the MECO LWP". NFESC accomplished this task by making the system lighter, smaller, deleting the external generator, and replacing the ultra filtration process by introducing common bag and cartridge filters as the pre treatment system.

The system did make quality product water at each of the test sites. Of the four systems involved in the test I feel that this system could be improved upon in the future by providing further funding to NFESC and removing the parameters set by ONR.

This system was also packed, unpacked, set up and operated expediently by the marines. Plenty of room was available for any initial supplies that would be needed on initial deployment of this system. Also noted during the assessment was that this system was very loud when in operation.

System 4:(Tech War): This system was also very easy to understand and operate. Several specific differences were noted during the assessment: This system came with an ocean intake system to extract water from heavy surf conditions, the diesel driven pumps were partially enclosed to reduce noise volume, and it was not required to shut the system down to service the pre-filtration skid.

This system also produced quality potable water at each of the test sites. This system was also packed, unpacked, set up and operated expediently by the marines.

One very important observation that was noted was the high volume and low TDS of water that this system produced compared to the other three.

3. The following are my comments concerning the logistical support received from all activities involved in the assessment:

Subject; Bn Supply:

- Several items were shipped via TMO that were not properly tracked and delivered to the point of contact.
- Port o John was not delivered to training area at Onslow beach.
- No representative was present at the logistical coordination meeting held at BB-28.

Recommendations:

- When boxes are shipped with a Point of Contact on the label, that Marine should be notified.
- Follow up when making reservations with external activities.
- Have a representative present at meetings that supply support will be required.

Subject; MT/HE:

- Motor transport and Heavy Equipment required to support the assessment was minimal. The support received from these activities was very professional.

Recommendations:

- N/A

D.R. Orosz
SSGT USMC